REMARKS

Upon entry of this amendment, claims 1, 4, 14-19 and 22-32 are pending. No new matter has been added by way of this response.

112 Rejections

Applicants respectfully request reconsideration of the rejection of claims 1, 4, 14-19 and 22-32 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Paragraph 27 of the specification as currently amended describes the identified subject matter in sufficient detail that one of ordinary skill in the art could make and use the invention identified in the Office action. Therefore, Applicant requests that this rejection be withdrawn.

Applicants respectfully request reconsideration of the rejection of claims 1, 4, 14-19 and 22-32 under 35 U.S.C. § 112, first paragraph, as failing to provide enablement. Those of ordinary skill in the art would understand that "E" means "any element." The examples provided in the specification disclose this fact as well as the fact that "E" is not always a necessary component of the anode material (because "t" may have a value of zero). The specification at paragraph 27 as amended reads:

> Moreover, the anode may be prepared by using a metal or a semiconductor capable of forming an alloy or compound together with lithium or the alloy or compound thus obtained. The metal, alloy, or the compound can be expressed, for example, by $D_sE_tLi_u$. In this chemical formula, D represents a metal element or a semiconductor element capable of forming an alloy or compound together with lithium. Moreover, the s, t, and u values are as follows: $s > 0$, $t \geq 0$, and $u \geq 0$.

Persons skilled in the art would be enabled by this disclosure in light of the many examples provided in the rest of the specification. Therefore, Applicants request that this rejection be withdrawn.

Applicants respectfully request reconsideration of the rejection of claims 22, 29 and 32 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Claim 22 pertains only to a specific subcomponent of the $D_sE_tLi_u$

compound covered by claim 4. As such, those skilled in the art would not assume that the subscript for lithium is 0, rather the subscript could be any number greater than 0 as recited in claim 4.

Claims 29 and 32 have been amended in this current action to correct typographical errors. Therefore, Applicants request that this rejection be withdrawn

Section 102 - Inamasu

Applicants respectfully request reconsideration of the rejection of claims 1, 4, 14-19, and 22-32 under 35 U.S.C. § 102(b) as being anticipated by JP 10-312789 (Inamasu). Inamasu discloses a non-aqueous battery comprising a negative electrode including an active material having an average grain size of 0.1-100 micrometers (paragraph 0020) and silicon and germanium (paragraph 0018). Inamasu does not disclose a cathode comprising $Li_xFe_yPO_4$ having a particle diameter not greater than 1 micrometer, wherein $0 < x \leq 2$ and $1 \leq y \leq 2$, and an anode comprising a conductive agent including $D_sE_tLi_u$, wherein D is tin or silicon, E includes another element, and $s > 0$, $t > 0$ and $u > 0$.

Inamasu also fails to disclose a secondary cell having an anode wherein said anode comprises sintered carbon material. Although the Office action asserts paragraph 20 provides a "Li_xFePO_4 active material having an average grain size (particle diameter) of 0.1 to 100 μm," Inamasu specifically refers to "the forward **negative**-electrode active material having an average grain size (particle diameter) of 0.1 to 100 μm" and does not refer to Li_xFePO_4, **a cathode** active material as claimed. In fact, Inamasu does not mention a grain size of any particle on the **cathode**. Additionally, although the Office action asserts paragraph 23 of Inamasu discloses such a sintered anode, the sintering material discussed in paragraph 23 of Inamasu refers to a "covalent crystal," but does not state whether it refers to a carbon material.

Moreover, Inamasu discloses negative electrode active material grain sizes of a broad range (0.1-100 micrometers), but lacks specific examples falling within the range claimed in the present application (less than 1 micrometer). *See* M.P.E.P. § 2131.03; *see also Atofina v. Great Lakes Chem. Corp*, 441 F.3d 991, 999 (Fed. Cir. 2006) (noting that, "claimed subject matter must be disclosed in the reference with sufficient

specificity..."). Moreover, the range as disclosed in the present application yields new and unexpected results relative to the prior art. The specification provides that "by containing $A_xM_yPO_4$ having the particle diameter not greater than 1 micrometer, lithium ions are smoothly diffused, which suppresses destruction of the crystal structure…thereby preventing deterioration of the cell capacity." On the same page, the specification provides "by using the cathode active material containing particles having a diameter not greater than 1 micrometer, the non-aqueous electrolyte secondary cell becomes preferable for charge/ discharge reactions using a large current." As such, Inamasu fails to disclose with sufficient specificity to anticipate claims 1, 4, 14-19, and 22-26.

Section 102 - Kamauchi

Applicants respectfully request reconsideration of the rejection of claims 4, 19, 22-26 and 30-32 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,705,296 (Kamauchi). Kamauchi discloses a non-aqueous battery comprising a negative electrode including an active material having an average grain size of 0.01-20 micrometers (column 2, line 60). Kamauchi does not disclose a cathode comprising $Li_xFe_yPO_4$ having a particle diameter not greater than 1 micrometer, wherein $0 < x \leq 2$ and $1 \leq y \leq 2$, and an anode comprising a conductive agent including $D_sE_tLi_u$, wherein D is tin or silicon, E includes another element, and $s > 0$, $t > 0$ and $u > 0$.

Kamauchi also fails to disclose an anode wherein said anode comprises sintered carbon material. Although the Office action asserts Kamauchi discloses a "positive active material [having] an average size of 0.01 through 20 μm," Kamauchi specifically refers only to "[t]he **oxide** mentioned above is pulverized to particles having an average size of 0.01 through 20 μm." The oxide is one of cobalt oxide or lithium-cobalt oxide, but does not include the lithium-iron phosphate of the present invention. Hence, Kamauichi does not disclose "a cathode comprising $Li_xFe_yPO_4$ having a particle diameter not greater than 1 micrometer."

Moreover, Kamauchi discloses negative electrode active material grain sizes of a broad range (0.01-20 micrometers), but lacks specific examples falling within the range claimed in the present application (less than 1 micrometer). *See* M.P.E.P. § 2131.03;

see also Atofina v. Great Lakes Chem. Corp, 441 F.3d 991, 999 (Fed Cir. 2006). In examples 1 and 4, Kamauchi discloses particle sizes "not greater than 20 micrometers." In examples 7 and 9 particle sizes of 5 micrometers are disclosed. In example 13, a particle size of 10 micrometers is disclosed. No specific examples of negative electrode active material particle sizes of less than 1 micrometer are disclosed. Moreover, the range as disclosed in the present application yields new and unexpected results relative to the prior art. The specification provides that "by containing $A_xM_yPO_4$ having the particle diameter not greater than 1 micrometer, lithium ions are smoothly diffused, which suppresses destruction of the crystal structure…thereby preventing deterioration of the cell capacity." On the same page, the specification provides "by using the cathode active material containing particles having a diameter not greater than 1 micrometer, the non-aqueous electrolyte secondary cell becomes preferable for charge/ discharge reactions using a large current." As such, Kamauchi fails to disclose with sufficient specificity to anticipate claims 1, 4, 14-19, and 22-26.

Conclusion

Applicant respectfully requests withdrawal of the rejections and believes that the claims as presented represent allowable subject matter. If the Examiner desires, applicant welcomes a telephone interview to expedite prosecution. Applicant believes there is no fee due at this time. However, the Commissioner is hereby authorized to deduct any deficiency or credit any overpayment to Deposit Account No. 19-3140.

Respectfully submitted,

Date: April 10, 2007

/David E. Crawford, Jr./
David E. Crawford, Jr.
Registration No. 38,118
Customer No. 26263
314.259.5810
Attorney for Applicants